Delta Operations for Salmonids and Sturgeon (DOSS) Group
Conference call: 11/12/13 at 9:00 a.m.

Objective: Provide advice to the Water Operations Management Team (WOMT) and National Marine Fisheries Service (NMFS) on measures to reduce adverse effects from Delta operations of the Central Valley Project and the State Water Project on salmonids and green sturgeon. DOSS will work with other technical teams. DOSS notes and advice can be found at: http://www.westcoast.fisheries.noaa.gov/central_valley/water_operations/doss.html.

DWR: Mike Ford, Edmund Yu, Kevin Reece, Farida Islam, Dan Yamanaka, James Gleim, Aaron Miller
FWS: Craig Anderson, Leigh Bartoo
NMFS: Barbara Rocco, Jeff Stuart
Reclamation: Russ Yaworsky, Josh Israel
DFW: Chris McKibbin, Colin Purdy, Bob Fujimura, Krystal Acierto
SWRCB, EPA, USGS: not present

Agenda

1. Highlights from Long-Term Operations Biological Opinions (LOBO) Annual Review (presentations are posted at the bottom of the webpage of review and supplemental materials: http://deltacouncil.ca.gov/2013-long-term-operations-biological-opinions-annual-science-review-%E2%80%93-review-materials-supplemental)
2. Fish monitoring
3. Current ops
4. Check-in on current and upcoming RPA actions
5. DOSS advice

LOBO Annual Review: Stuart (NMFS) provided a summary of the annual review conducted 11/6 and 11/7 by the Independent Review Panel (IRP). IRP's presentation of initial findings and recommendations are provided at http://deltacouncil.ca.gov/sites/default/files/documents/files/Initial_Panel_Findings.pdf.

Hydrologic overview: The past couple of dry years offered the opportunity to assess and define climate change on a more global-landscape level, which might affect management decisions in the future. IRP recommended that the hydrologic record used in forecasting procedures be examined for cyclical patterns and that forecasting and other hydrological modeling potentially be adjusted to explicitly recognize that variation.

Sacramento River Temperature Task Group (SRTTG): IRP appreciated the effort by different agency researchers to link the biological responses observed to biotic and abiotic conditions resulting from RPA or other actions. It suggested moving from fixed temperature targets to a more fluid, adaptive management approach based on a suite of biologically appropriate response measures. IRP believed that it was important to correlate redd distributions with temperature, flow, and stage downriver of Keswick Dam for salmonid species, especially for winter run. It was particularly interested in a more explicit consideration of how actions taken to conform to the temperature control point (TCP) might affect life stages or runs later in the year. It also made the following points:

- This dry year will establish opportunities to obtain response data for species sensitivities.

- Better elucidation of downstream water quality related to releases from various reservoir strata (supplemental models to HEC-5Q).
- Dry year resulted in increased diversion from Trinity River. What is the impact on Trinity River fish?
- How many fish are being affected by meeting (or not meeting) a given fixed TCP?
- What are the interactions between fish life stage and location of TCP?
- What is the value of using 7DADM? The value depends on lethal and sublethal effects in local populations. What is the best way to measure that stress (duration)? What has been gained by this change?

Term & Condition 2.a: Israel (Reclamation) and Yu (DWR) presented information to IRP on Term & Condition 2.a. of the biological opinion with regard to the new proposed equations for estimating loss. IRP believed that the proposed equations underestimate annual loss because of how days where the salvage is zero are handled in determining loss. The uncertainties in the loss equations were greatly understated and IRP was not comfortable with the Jahn model's characterization of loss and the uncertainty associated with it. Israel commented that he will wait for the IRP report and then meet with the technical team to review its recommendations.

USFWS Long-term Operations Biological Opinion: A retrospective analysis of water operations and Delta smelt protective actions taken in early water-year 2013: IRP questioned whether meeting RPA Component 1, Action 1 objectives was effective in a population context. Bartoo (FWS) commented that she believes that IRP was coming from a purely scientific rather than a regulatory standpoint and that the definition of "effective" is most likely different in those two contexts. One idea that IRP liked was to come up with more of a preemptive strategy to pinpoint an early flush event in a given year. We would need to begin taking action earlier than we have been in the past and this would require some new modeling. There was a question on the result of changing exports during a first flush to change turbidity in the Delta. It was also noted that strong "first flush" signals occur maybe only half of the time so in the other years, there is no clear trigger that indicates when preemptive action would be appropriate. We definitely need to understand behavioral and physiological responses of delta smelt to turbidity and model these to understand how turbidity influences their movement and behavior.

The final IRP report is due to the Delta Science Program by 12/7.

DOSS thanks all of those who provided their insight, hard work, and time to produce this year's annual reports and to make their presentations for this year's annual review workshop.

Fish Monitoring: The following table presents fish monitoring data. Unless otherwise noted, reported sizes are fork length. Note that because of the Veteran's Day holiday yesterday, the DAT data normally presented here and graphs presented at the end of the document had not been received before today's conference call, which was expected. See also: http://www.water.ca.gov/swp/operationscontrol/calfed/calfedmonitoring.cfm.

Location	Chipps Is. Midwater Trawl	Sacramento Trawls	Mossdale Kodiak Trawl	GCID	Knights Landing RST	Tisdale RST	Beach Seines
Sample Date				11/5–11	11/5–9	11/5–11	
Total Catch				**115**	**1**	**1**	

FR							
WR				110			
SR				1	1 (38 mm)	1 (35 mm)	
LFR				4			
Ad-Clipped Chinook							
DS							
Splittail							
Longfin							
SH (ad-clip)							
SH (wild)							
W. Temp. (avg. °F)				60.1	56.0	53.5	
Flows (avg. cfs)				900[1]	5442	5601	
Turbidity (avg. NTU)				1.6	3.3[2]	5.9	
WR/LFR Avg. CPUE				0.60			
FR/SR Avg. CPUE					0.007	0.004	

CPUE = catch per unit of effort reported as the average fish/hour over reported sampling dates; ACT = acoustic tag; GCID = Glenn–Colusa Irrigation District; RST = rotary screw trap

[1]Flows at GCID are Bypass flows (in cfs) not Sacramento River flows.

[2]Note that FTU is used at Knight's Landing in place of NTU.

Mokelumne River Hatchery Release: No fish have been seen at the fish salvage facilities from the release made on 11/1 (100,000 yearling fall-run Chinook; all coded wire tagged and ad-clipped).

Knights Landing: Night sampling stopped on 11/9. Sampling is being done during daylight hours only; however, sampling at night will resume tonight.

Stanislaus River: Stuart reported that 12 *O. mykiss* have already passed the Stanislaus River counting weir this year: 6 > 16 inches long, 1 adipose-fin clipped.

Fish Salvage: Fujimura (DFW) reported that no salvage of Chinook salmon, steelhead, green or white sturgeon, or longfin or delta smelt was reported from 10/1 through 11/11 at the CVP or SWP fish salvage facilities.

Reece (DWR) mentioned that a 55-mm juvenile pink salmon (*O. gorbuscha*) was salvaged last March at SWP. Pink salmon are not native to the Central Valley but are seen periodically, such as a few years ago in the Yuba River. They are usually found in Washington and Oregon and in the Columbia River system.

Operations (11/12/13)

SWP		**CVP**	
Exports (cfs)			
Clifton Court Forebay	2,000	Jones Pumping Plant	2,500
Reservoir Releases (cfs)			
Feather - Oroville	1,750	American - Nimbus	1,300
		Sacramento - Keswick	4,250 (may cut by 500

			pending coordination this week with B2 group)
		Stanislaus - Goodwin	250 (to 200 on 11/22)
Reservoir Storage (in TAF, % of capacity)			
San Luis (SWP)	213 (20)	San Luis (CVP)	269 (28)
Oroville	1,454 (41)	Shasta	1,700 (37)
New Melones	1,028 (42)	Folsom	267 (27)
Delta Operations			
DCC	Closed (closed on 11/12; closed for Rio Vista flow standard)	Sacramento River at Freeport (cfs)	9,043
Outflow Index (cfs)	~4,200	San Joaquin River (cfs) at Vernalis	1,080
Total Delta Inflow (cfs)	10,560	OMR (daily) (cfs)	
Water Temperature (°F)		OMR 5-day avg (cfs)	
X2 (km)	>81	OMR 14-day avg (cfs)	
E/I (%)	41.8 (3-d avg)		

Weather: Outlook is dry for the remainder of the month. As long as it continues to be dry, conserving reservoir storage will be an important consideration in interagency discussions of reservoir releases.

RPA Actions:

- IV.1.1: No alerts tripped in the past week.
- IV.1.2: No triggers exceeded in the past week.
- IV.3: In effect as of 11/1; no triggers exceeded yet.

Summary of 6-Year Study Discussion: The main points of the discussion are listed below.

- Study leads are working to coordinate releases of steelhead and juvenile Chinook salmon for the 6-year steelhead study and the CVPIA fall-run Chinook salmon survival study, respectively.
- The goal is to avoid overlap of releases of the two species to reduce hypothesized predation of steelhead on the smaller fall-run Chinook salmon study fish. It was proposed that releases be done 7–10 days apart, if possible.
- Steelhead could be released at the beginning of March, April, and May, or at the end of those months with 4 weeks between releases to accommodate the prolonged period of steelhead migration (2–3 weeks to Chipps Island following release).
- Releases at the end of the month will result in a release in late May that will probably expose steelhead to suboptimal water conditions in June (higher temperatures and lower San Joaquin River flows) that may bias survival estimates.
- Environmental conditions should be maintained during the 4-week period of each steelhead release to the greatest extent practicable. This might conflict with the Chinook studies in which releases are made more frequently, with a shorter window of time between releases. Varying environmental conditions for the Chinook study will result in less stable conditions for the steelhead study.

- Periods longer than 4 weeks between release dates might also result in physiological differences between the release groups, such as size and smolting status, that will complicate the analysis of the survival results.
- Coordination between the Chinook salmon study and 6-year steelhead study will also require scheduling of the trained technicians and biologists needed to complete the surgical procedures necessary to tag the study fish and holding and transporting these fish. The number of such personnel is limited.

Israel asked for input from DOSS to assist in finalizing the release schedule. The release schedule needs to be determined within the next week or so.

Smelt Working Group (SWG): SWG has not yet met. Previous SWG meeting notes are available at: http://www.fws.gov/sfbaydelta/cvp-swp/smelt_working_group.cfm.

DOSS Advice to WOMT and NMFS: None.

Annual Review: The final DOSS report, including the annual incidental take report in Appendix A, is posted at: http://www.westcoast.fisheries.noaa.gov/central_valley/water_operations/ocapwy2013.html.

Next Meeting: The next DOSS conference call will be on 11/19 at 9:00 a.m.